TRACTOR RADIO

SOLID STATE
MANUAL TUNED 6-12 VOLT
DUAL POLARITY

MODEL NO. TR-7270-S

Manual No. 57-TR-7270-S

SINCE 1920 AUTOMATIC RADIO

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OWNER'S GUIDE AND PARTS LIST

DESCRIPTION

Your new Tractor Radio features a revolutionary patented circuit that permits operation on either 6 – 12 volt electrical systems without a manually operated change over switch. It also features a novel slide switch that permits operation on either a positive or negative grounded battery system. This system is equipped with a self-contained telescopic spring base Antenna, and has a single unit weatherproof construction, and shock-proof mounting.

This receiver has been designed with a 3-gang permeability manual tuner, thereby insuring the finest in sensitivity and selectivity. The unit is simple to install and requires no electrical adjustment after installation.

ELECTRICAL SPECIFICATIONS

Power Supply	6 or 12 volt storage battery
Current	6 V @ .4 amp. average
	12 V @ .9 amp. average
Frequency Range	535 to 1610 Kc
I. F. Frequency	262.5 Kc
Speaker	6 ohms, 6" x 9" oval
Power Output, undistorted at	6.6 volts-2.5 watts
Power Output, undistorted at	13.2 volts-8 watts
Power Output, maximum at	6.6 volts-3.5 watts
Power Output, maximum at	13.2 volts-10 watts

This set contains the following Diodes and Transistors:

D1	-	1GD2/1N295 AVC Diode
D2	-	1GD2/1N295 Detector Diode
D3	-	1GD10/1N2326 Bias Diode
Q1	-	6-60/2N1637 RF Amplifier, Transistor
Q2	-	6-61/2N1639 Converter, Transistor
Q3	-	6-62/2N1638 IF Amplifier, Transistor
Q4	-	6-53/2N591 1st Audio, Transistor
Q5	-	6-53/2N591 2nd Audio, Transistor
Q6,7	-	8P404/2N176 Power Output, Transistor

OPERATION

Your Tractor Radio is enclosed in a rugged weatherproof case. Open the front cover by raising the thumb catches at the sides of the case, swing the cover all the way back so that it lies flat, and rotate the catches to lock over the sides of the case. Extend the antenna to the lowest position necessary for good reception. The cover should be closed and locked when the radio is not in use. Collapse the antenna and turn the radio off before closing the cover.

TONE CONTROL KNOB

This knob is located at the left side of the radio directly behind the VOLUME CONTROL KNOB. After a station has been selected this knob may be rotated to adjust the tone of the radio to "BASS" or "TREBLE" as desired.

VOLUME CONTROL KNOB

This knob is located on the left side of the radio. Turning the knob slightly to the right until a slight click is heard will put the radio into operation. Turning further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to the required loudness. The volume should never be reduced by detuning the station selector knob.

STATION SELECTOR KNOB

This knob is located on the right side of the radio. The knob should be turned until the desired station has been selected. Adjust station selector knob very carefully until the station comes in with the most natural tone.

PROGRESS THROUGH ACHIEVEMENT

Printed in U.S.A.

TRACTOR-RADIO

(MANUFACTURER'S SUGGESTED INSTALLATION)

Your Tractor Radio has been designed so that it may be easily installed in any convenient location. The specially designed shock-proof mounting base is made to accommodate a standard one-inch pipe. **Never** attempt to mount your Tractor Radio without its shock-proof base. A one foot length of pipe and a floor flange are supplied with the radio. Some installations require additional lengths of pipe, and hardware which are readily obtainable locally. The best method of mounting will depend upon the tractor on which the radio is to be installed. Detailed instructions are given in the following pages.

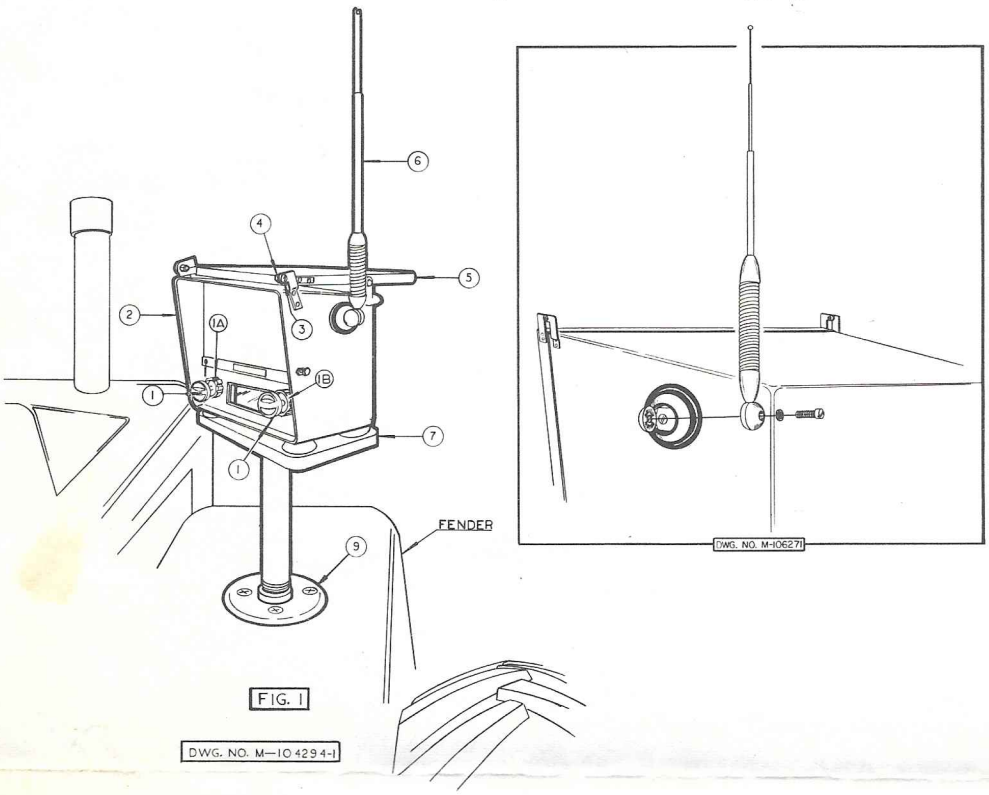


FIG. 1

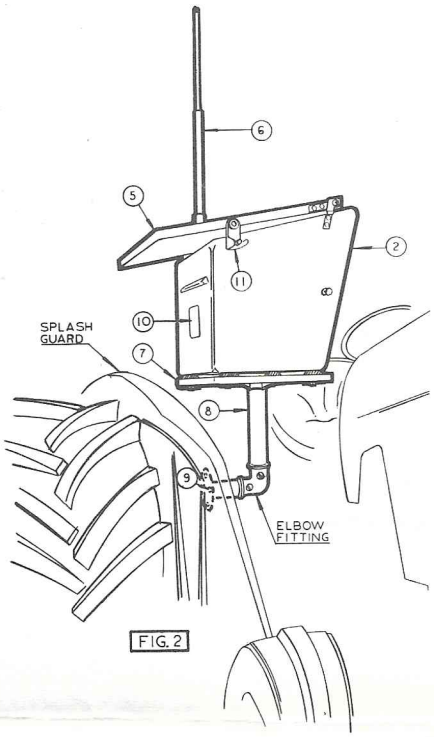


FIG. 2

Method I – FENDER MOUNTING – Fig. 1:

1. Using the mounting flange as a template, drill (4) four 5/16" holes through the Tractor fender in the desired location.

CAUTION: Before Drilling, Check Below Fender For Any Obstructions.

2. Secure the flange to the fender with (4) four ¼" carriage bolts.

3. Screw in the length of one-inch pipe necessary to raise the radio to the desired operating level. Tighten the pipe securely with a wrench.

4. Mount the Tractor Radio on top of the pipe and tighten the set screw in the shock-proof mounting base.

Method II – SPLASH GUARD MOUNTING – Fig. 2.

On some Tractors it will be possible to mount the flange directly to the side of the Splash Guard. Two lengths of pipe and a "T" or elbow fitting are assembled to form an L-shaped mount.

1. Using the flange as a template, drill four 5/16" diameter holes through the Tractor Splash guard in the desired location.

2. Secure the flange to the side of the Splash Guard with (4) four ¼" carriage bolts.

3. Screw in a length of 1 inch pipe sufficient to extend the mounting at a desired distance away from the Tractor Splash Guard. Tighten securely.

4. Attach a "T" or elbow fitting onto the end of the extension pipe and tighten securely. The open end of the fitting should point directly upward. Drill a 5/16" hole completely through both the pipe and fitting, then fasten with a ¼" carriage bolt to prevent the pipe from turning.

5. Screw into the fitting a length of pipe sufficient to raise the radio to the desired level. Drill and bolt the pipe and fitting to prevent the pipe from rotating as described in the latter paragraph.

6. Mount the Tractor Radio on top of the pipe and tighten the set-screw.

ELECTRICAL CONNECTIONS

The electrical connections should be made after the Tractor Radio has been mounted. Fasten the braided ground cable to the tractor frame as close to the radio as possible. Loosen a bolt or nut from the tractor frame, scrape away the paint, and secure the lug to the bare metal by tightening down the bolt or nut. If no convenient bolt or nut is accessible, drill a 5/32 inch diameter hole in the tractor frame, scrape the paint, and fasten the lug to the bare metal with a No. 8 self-tapping screw and the plain round washer supplied in the kit of mounting parts. Unless there is an entrance hole to the battery compartment already provided, cut or file an entrance slot in the compartment, slip the rubber grommet furnished in the mounting parts kit over the battery lead, and slide the rubber grommet into the slot. Loosen the clamping nut of the "Hot" battery cable terminal (the terminal which is *NOT* grounded to the tractor frame), insert the lug between the nut and the terminal, and tighten the clamping nut. Drill 5/32 inch diameter holes at convenient points on the tractor frame and fasten down the battery lead with the cable clamps and self-tapping screws supplied. Position the cable clamps so as to take up any excess in the battery lead without undue strain.

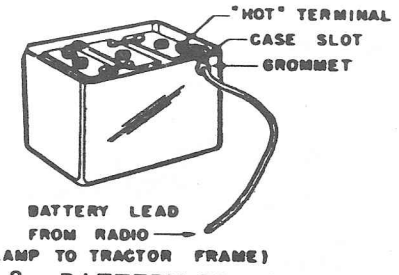


Fig. 3 – BATTERY CONNECTION

IMPORTANT (See Fig. 4 & 4A)

This receiver is designed for 6 or 12 volt electrical systems which have either a positive or negative battery ground.

The polarity reversing switch must be positioned correctly before installing your radio or making any electrical connections to the receiver.

Position the polarity switch negative if the negative terminal of the battery is grounded to the car (–) Fig. 4.

Set the polarity switch to the positive position if the positive terminal of the battery is grounded to the car (+) Fig. 4A.

DAMAGE TO THE RECEIVER MAY RESULT IF POLARITY SWITCH IS NOT POSITIONED CORRECTLY BEFORE OPERATING.

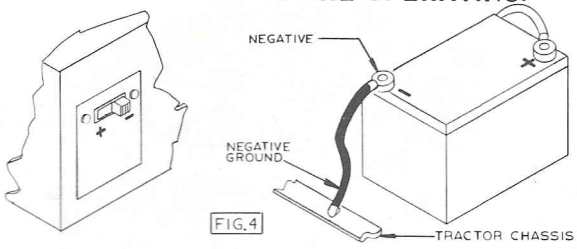


FIG.4

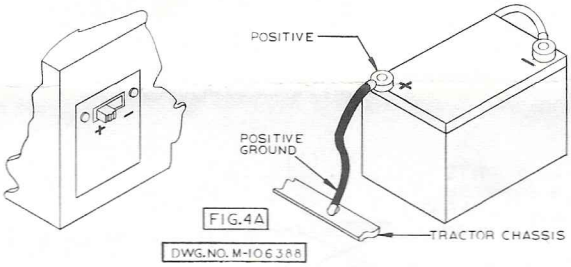


FIG.4A

DWG. NO. M-106388

MOTOR NOISE ELIMINATION

DISTRIBUTOR SUPPRESSOR: See Fig. 5

Disconnect the center lead in the distributor head of the motor. Cut lead approximately 2 inches back from metal tip end. Screw suppressor into cut end of long lead. Screw cut end of short lead into suppressor. Plug lead, with attached suppressor, back into distributor head.

The generator condenser and distributor suppressor will normally eliminate all objectionable motor noise. If the motor noise persists, it may be necessary to attach a metal shield to the motor housing directly over the area where the spark plugs are located. This metal shield may consist of a sheet of light-weight steel approximately 14 inches wide by 12 inches long. Locate the shield as close as possible to the spark plugs and in such a manner that it is suspended vertically from the motor housing.

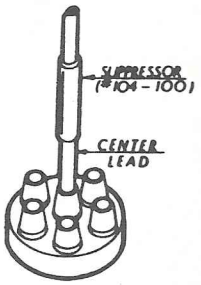


Fig. 5 DISTRIBUTOR SUPPRESSOR INSTALLATION

M-103578

GENERATOR CAPACITOR: See Fig. 6

Loosen one of the assembly bolts near the generator terminals. DO NOT REMOVE. Insert slotted generator capacitor mounting bracket under the bolt head and tighten the bolt. Connect generator capacitor lead to the ARMATURE terminal of the generator. NEVER CONNECT THE CAPACITOR TO THE FIELD TERMINAL OF A GENERATOR. The FIELD terminal of most generators is marked with a tag or plate stating: "DO NOT CONNECT CAPACITOR TO THIS TERMINAL."

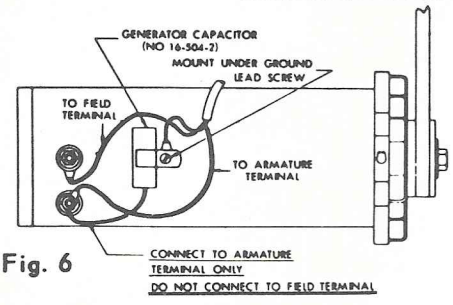
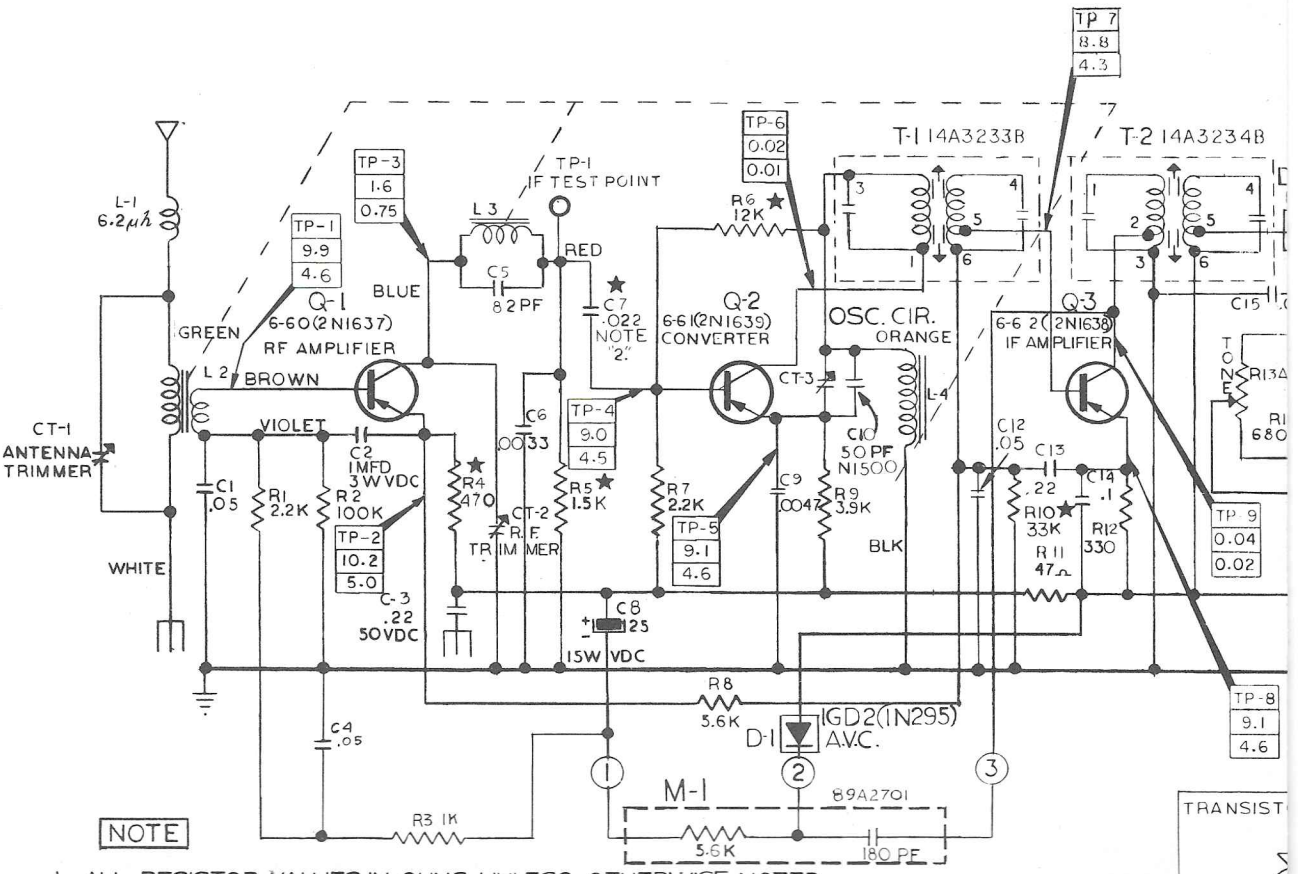
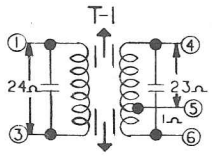


Fig. 6



1. ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE NOTED. K=1000 OHMS, 1 MEG= 1,000,000 OHMS.
2. ALL CAPACITOR VALUES IN MFD., UNLESS OTHERWISE NOTED. PF=MICROMICROFARAD, .05 MFD INTERCHANGEABLE WITH .047 MFD, ALSO .02 WITH .022
3. ALL VOLTAGES D.C. MEASURED FROM POINT INDICATED TO CHASSIS USING 20,000Ω/V METER. NO SIGNAL INPUT, SUPPLY VOLTAGE 14.0 OR 7.0 V DC (READING IN TOP BLOCK IN BOTTOM BLOCK AT 7.0 VDC), RADIO CONNECTED FOR NEGATIVE GROUND.
4. ALL RESISTORS ½ WATT UNLESS OTHERWISE NOTED.
5. CHASSIS GROUND
   COMMON GROUND
6. COMPONENTS MARKED ★ MAY VARY IN PRODUCTION, REPLACE WITH LIKE VALUE.
7. ALL NUMBERS IN PARENTHESIS,( ), ARE COMMERCIAL EQUIVALENTS.
8. VOLTAGE READINGS ARE NOMINAL AND MAY VARY SLIGHTLY BETWEEN INDIVIDUAL RADIOS.
9. THIS SCHEMATIC COVERS MODELS TR-7270, TR-7281, TR-7390, & TR-7401.



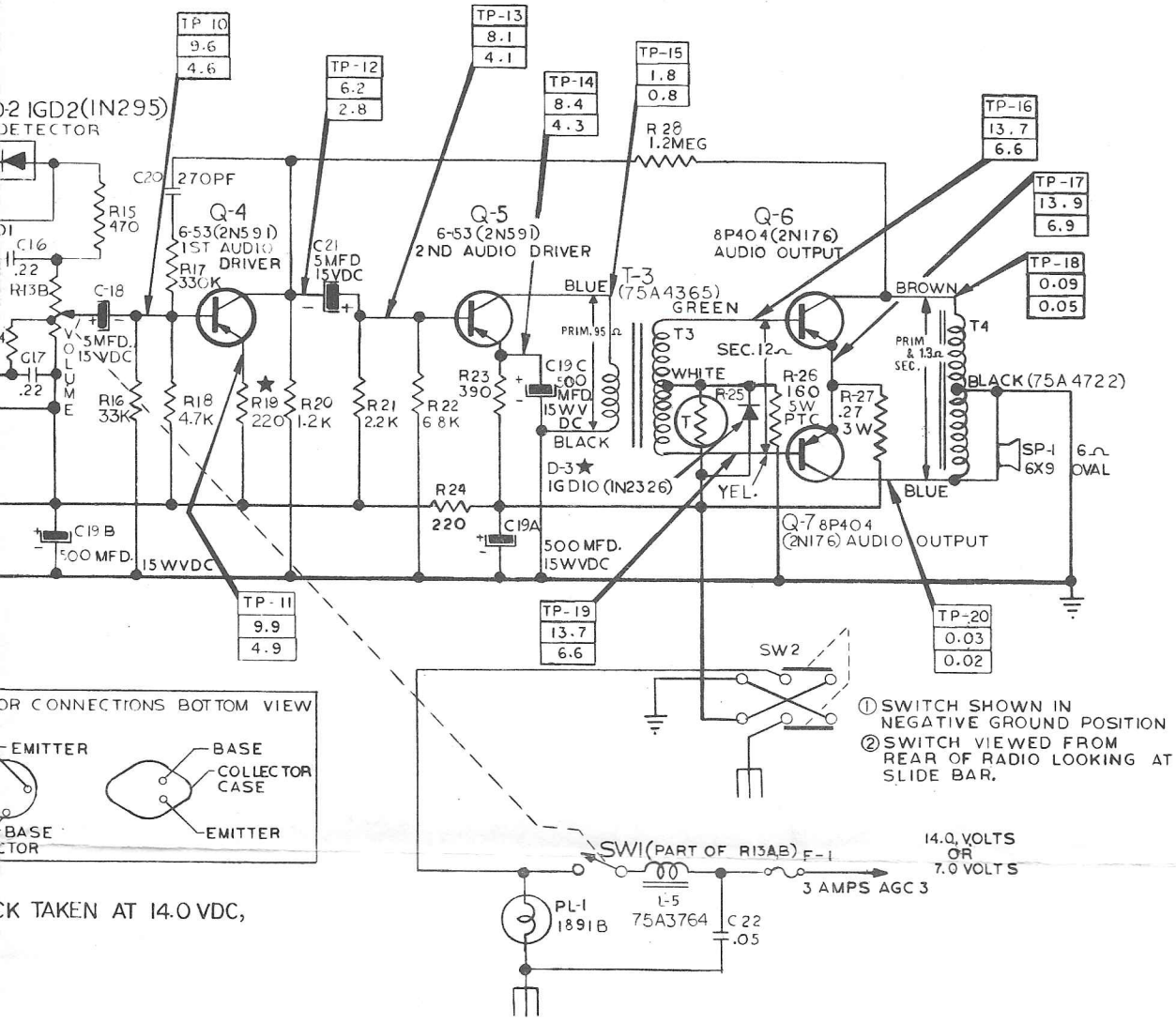
CAUTION: – BEFORE TROUBLE SHOOTING RADIO, OB
AND CHANGE ACCORDINGLY TO MATCH

ALIGNMENT

Volume control – Maximum, all adjustments.
No signal applied to antenna.
Power input – 13.2 & 6.6 Volts D.C.
Connect dummy antenna in series with output lead of signal generator.
Connect ground lead of signal generator to chassis.
Repeat alignment procedure as a final check.

The following equipment is necessary for proper alignment:
Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.
Non-metallic screwdriver.
Output meter. (2.5 volt for 1 watt output.)
Dummy antennas – .1 MFD. 30-30 MMFD.
For alignment points refer to Schematic Diagram.

Dial Setting	
1) 1610 KC	
2) 1610 KC	
3) 1610 KC	
4) Tune in signal from genera	
5) Tune in signal from genera	

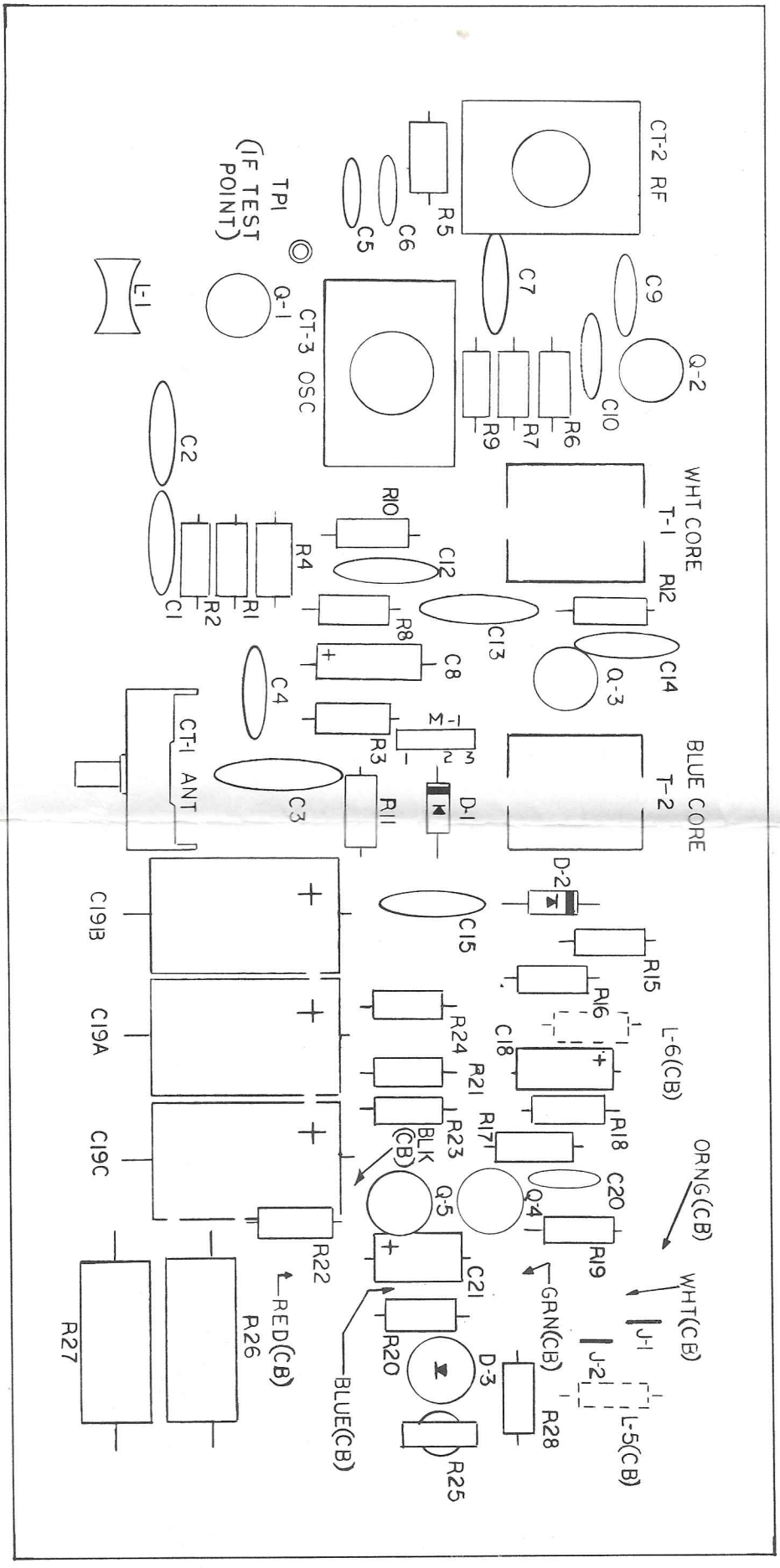


DWG. NO. S-102097-9D

BSERVE POSITION OF POLARITY REVERSING SWITCH
INPUT VOLTAGE POLARITY.

PROCEDURE

Generator Frequency	*Dummy Amt.*	*Generator Connection*	*Trimmer Reference*	*Trimmer Adjustment*	*Trimmer Function*
262.5KC	.1 MFD	6-61 2N1639 Q-2 Base	T2 Top & bottom	Maximum	Output I.F.
262.5KC	.1 MFD	6-61 2N1639 Q-2 Base	T1 Top & bottom	Maximum	Input I.F.
1610 KC	30 MMFD to Ground 30 MMFD in Series	Ant. lead	CT-3	Maximum	Oscillator
or 1610 KC	30 MMFD to Ground 30 MMFD in Series	Ant. lead	CT-2	Maximum	RF Stage
or 1610 KC	30 MMFD to Ground 30 MMFD in Series	Ant. lead	CT-1	Maximum	Antenna



SS-105385

Fig. 7 - Printed Circuit Board – Top View

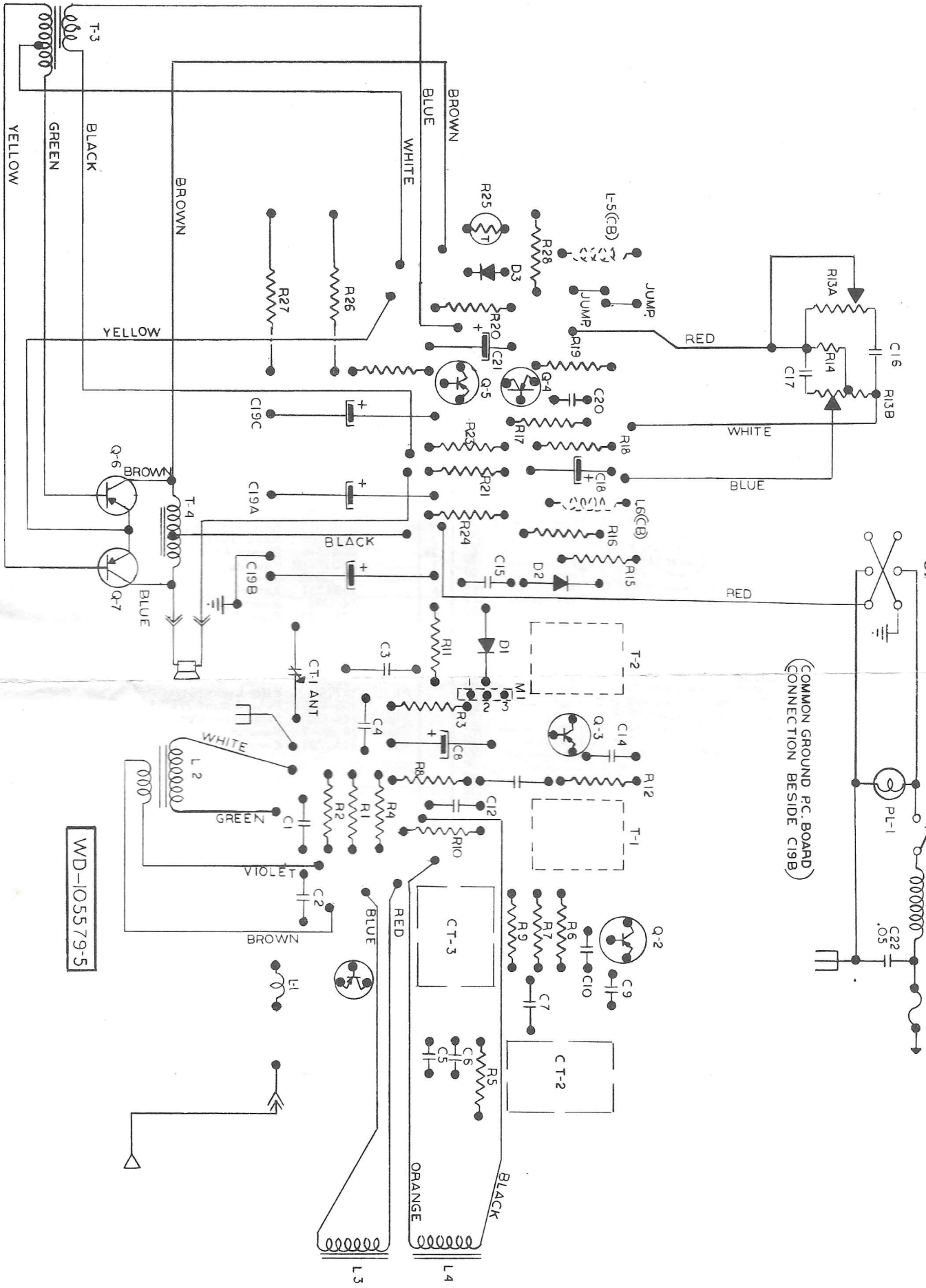


Fig. 8 - Lead Wire Connection – Bottom View

HOW TO RETURN DEFECTIVE PARTS

All parts on which an adjustment or replacement is desired must be returned with a letter specifying the reason for the return. This radio is manufactured in accordance with standard specifications established by the Radio Manufacturer's Association. Any reputable and experienced service man can correct any fault locally because complete information is available to all repair men through the service of Photo-Facts Service Manuals.

PARTS LIST

Schematic Location	Part Number	Description	Price List
		CAPACITORS	
C-5	25-820	82PF	$ .58
C-1,4,12,22	25-503	.05 MFD	$ .34
C-2	15-105	1 MFD 3VDC (Ultracap)	.70
C-3,13	25-224	.22 MFD 50VDC	.70
C-20	25-271	270 PF	.58
C-6	25-332	.0033 MFD	.46
C-7	25-203	.02 MFD	.34
C-8	20-256	25 MFD 15VDC	1.04
C-9	25-472-S	.0047 MFD 10%	.46
C-10	15-101N	100 PF N750	.24
C-14	25-104	.1 MFD	.46
C-15	25-103	.01 MFD	.34
C-16,17	15-224	.22 MFD 50VDC	.70
C-18,21	20-505	5 MFD 15VDC	1.04
C-19A,B,C	20-507	500 MFD 15VDC	2.00
CT-1	28A6317	Antenna Trimmer	.92
CT-3	28A5232	Oscillator Trimmer	.92
CT-2	28A6284	RF Trimmer	.92
		RESISTORS	
R-1,7,21	60-222-S	2.2K ohms ½ watt 10% P.C. Type	$ .20
R-2	60-104-S	100K ohms ½ watt 10% P.C. Type	.20
R-3	60-102-S	1K ohms ½ watt 10% P.C. Type	.20
R-4,19,24	60-221-S	220 ohms ½ watt 10% P.C. Type	.20
R-5	60-152-S	1.5K ohms ½ watt 10% P.C. Type	.20
R-6	60-123-S	12K ohms ½ watt 10% P.C. Type	.20
R-8	60-562-S	5.6K ohms ½ watt 10% P.C. Type	.20
R-9	60-392-S	3.9K ohms ½ watt 10% P.C. Type	.20
R-10,16	60-333-S	33K ohms ½ watt 10% P.C. Type	.20
R-11	60-470	47 ohms ½ watt 20% P.C. Type	.20
R-12	60-331-S	330 ohms ½ watt 10% P.C. Type	.20
R-13A,B,	80A3923	Dual Tone & Volume Control	2.76
R-14	60-681	680 ohms ½ watt 20%	.18
R-15, 4	60-471-S	470 ohms ½ watt 10% P.C. Type	.20
R-17	60-334-S	330K ohms ½ watt 10% P.C. Type	.20
R-18	60-472-S	4.7K ohms ½ watt 10% P.C. Type	.20
R-20	60-122-S	1.2K ohms ½ watt 10% P.C. Type	.20
R-22	60-682-S	6.8K ohms ½ watt 10% P.C. Type	.20
R-23	60-391-S	390 ohms ½ watt 10% P.C. Type	.20
R-25	5-32-35	Thermistor (Temp. Comp.)	1.50
R-26	61-161-5S	160 ohms 5 watts 10% P.T.C.	.58
R-27	60-.27-3S	.27 ohms 3 watts 10% P.C. Type	.20
R-28	60-125	1.2 Meg. ohms ½ watt 20% P.C. Type	.18
		TRANSFORMERS AND COILS	
T-1	14A3233B	1st I.F. Transformer	$1.50
T-2	14A3234B	2nd I.F. Transformer	1.50
T-3	75A4365	Input Transformer	2.60
T-4	75A4722	Output Transformer	3.16
L-1	14-6.2	6.2 Microhenry Choke	.58
L-2		Antenna Coil (Part of Tuner)	
L-3		R.F. Coil (Part of Tuner)	
L-4		Oscillator Coil (Part of Tuner)	
L-5	75A3764	"A" Line Choke	1.38

Schematic Location	Part Number	Description	Price List
		SEMICONDUCTORS	
Q-1	6-60/2N1637	R.F. Amplifier Transistor	$1.70
Q-2	6-61/2N1639	Converter Transistor	1.70
Q-3	6-62/2N1638	I.F. Amplifier Transistor	1.70
Q-4	6-53/2N591	1st Audio Driver Transistor	1.70
Q-5	6-53/2N591	2nd Audio Driver Transistor	1.70
Q-6,7	8P404/2N176	Audio Output Transistors	2.80
D-1	1GD2/1N295	A.V.C. Diode	.60
D-2	1GD2/1N295	Detector Diode	.60
D-3	1GD10/1N2326	Bias Diode	2.04

Key No.	Schematic Location	Part No.	Description	Price List
			MISCELLANEOUS	
1		47A1514	Knob's Tuning & Vol. Cont.	.70
2		48A1509	Knob, Tone Cont.	.70
2A		48A1510	Dummy Knob	.70
3		54D3741R	Housing	16.00
4		52-1204B	Cover	2.10
6		10B6251	Antenna Assy.	5.50
7		54-1206	Mounting Base (less shock mtgs.)	3.80
8		135-1201	Pipe (1 ft. threaded on one end)	1.50
9		135x205	Mounting Flange	1.00
10		52A2123	Polarity Switch Cover	.60
11		52A3873R or L	Thumb Latch (right or left)	.40
	SP-1	73B2093	Speaker 6" x 9" 6 ohms	8.40
		78B5809	Tuner, Manual	7.48
	PL-1	1819B	Pilot Light (Blue)	.25
	F-1	108-400	Fuse 4 amps 7/8" Long	.25
	Fig. 5	104-100	Suppressor Capacitor	.58
	Fig. 6	16-504-2	Generator Capacitor	.92
	M-1	89A2701	Couplate, A.V.C.	.40

CAUTION:

Silicone Compound is applied between the power transistor and chassis at the factory AND MUST BE RE-APPLIED when installing a replacement transistor. If it is not, heat transfer is inadequate and the transistor can be damaged. General Cement Z5 Silicone Compound, GC Part No. 8101, is available nationally and can be used for this purpose.

IMPORTANT: All prices in this literature are subject to change without notice and are subject to an additional charge to cover any applicable sales tax, use, occupation or other tax affecting our purchase or sale of merchandise.

HOW TO ORDER REPLACEMENT PARTS

PART ORDERS MUST CONTAIN:

1. Part Number and Description.
2. Model Number — found on the back, side, or bottom of Unit.
3. If Part Number differs from that shown on Parts List, give Part Number on Component.

WHERE TO ORDER:

AUTOMATIC RADIO MFG. CO., INC.
2 MAIN STREET
MELROSE, MASS.

AUTOMATIC RADIO of CANADA, LTD.
25 BERMONDSEY ROAD
TORONTO, ONTARIO